AMENDMENTS TO THE CLAIMS:

Please amend claims 43 and 62 as follows.

Please add new claims 75 and 76.

Listing of Claims:

1-42 (Cancelled)

43. (Currently Amended) Process for producing a layer system for the protection against wear, for the protection against corrosion and for improving the sliding properties and the like, having an adhesive layer for the arrangement on a substrate, a transition layer for the arrangement on the adhesive layer and a cover layer of an adamantine carbon,

~~wherein the adhesive layer comprises at least one element from the Group which contains the elements of the 4th, 5th and 6th Subgroup and silicon, the transition layer comprises carbon and at least one element from the Group which contains the elements of the 4th, 5th and 6th Subgroup as well as silicon, and the cover layer comprises essentially adamantine carbon, the layer system having a hardness of at last 15 GPa, and an adhesion of at least 3 HF, on a substrate,~~ said process comprising

a) charging the substrate into a vacuum chamber and pumping down to a vacuum of a pressure of less than 10^{-4} mbar, preferably 10^{-5} mbar,

b) cleaning a surface of the substrate ,

c) plasma-aided vapor-depositing of the adhesive layer on the substrate,

d) applying the transition layer to the adhesion layer by the simultaneous plasma-aided vapor depositing of the adhesion layer constituents and depositing carbon from the gas phase,

e) applying the adamantine carbon layer on the transition layer by a plasma-aided depositing of carbon from the gas phase,

at least during process steps c), d) and e), a substrate bias voltage being applied to the substrate, and at least during process steps d) and e), the plasma being stabilized by a magnetic field.

44. (Original) Process according to claim 43, the cleaning of the substrate surface comprises at least one of a heating step and an etching step.

45. (Original) Process according to claim 44, wherein the heating step takes place by at least one of radiant heating, inductive heating and by electron bombardment.

46. (Original) Process according to claim 45, wherein the electron bombardment is caused by the ignition of a low-voltage arc and the simultaneous application of a continuous AC or AC superimposed bias voltage, as particularly a pulsed positive substrate bias voltage.

47. (Original) Process according to claim 44, wherein the etching step is carried out by ion etching, by means of at least one of a noble gas and hydrogen as the process gas, a low-voltage arc being ignited and a continuous negative substrate bias voltage being applied to the substrate.

48. (Original) Process according to claim 44, wherein the etching step is carried out by ion etching by means of at least one of a noble gas and hydrogen as a process gas, and an AC or AC superimposed substrate bias voltage, being applied.

49. (Original) Process according to claim 44, wherein the vapor depositing of the adhesive layer takes place one of by PVD processes, plasma CVD processes, cathodic sputtering and evaporation out of crucible by means of a low voltage arc.

50. (Original) Process according to claim 49, wherein the vapor depositing of the adhesive layer is aided by an additional low-voltage arc discharge and a negative substrate bias voltage is applied to the substrate.

51. (Original) Process according to claim 49, the vapor depositing of the adhesive layer is aided by an additional pulsed substrate bias voltage, an AC

or AC superimposed bias voltage, particularly a pulsed substrate bias voltage in a medium frequency range of from 1 to 10,000 kHz.

52. (Original) Process according to claim 43, wherein, for the ignition of a plasma, a noble gas or a noble gas/hydrogen mixture, is fed into the vacuum chamber.

53. (Original) Process according to one of claim 43, wherein the transition layer is formed by an isochronous vapor depositing of at least one element from the Group which contains the elements from the 4th, 5th and 6th Subgroup and silicon, according to a process of claim 44 and a plasma-aided depositing of carbon from the gas phase, additionally, a carbon-containing gas, being used as the reaction gas.

54. (Original) Process according claim 53, wherein, as the thickness of the transition layer increases, the fraction of the carbon depositing is increased continuously or in steps.

55. (Original) Process according to claim 43 wherein, the adamantine carbon layer forming the cover layer is generated by the plasma CVD deposition of carbon from the gas phase with a carbon-containing gas being used as the reaction gas.

56. (Original) Process according to claim 53, wherein the reaction gas for depositing carbon, in addition to the carbon-containing gas, comprises at least one hydrogen and a noble gas.

57. (Original) Process according to claim 56, wherein, during the depositing of the cover layer made of adamantine carbon, at least one of the fraction of the carbon-containing gas is increased and the fraction of the noble gas is lowered.

58. (Original) Process according to claim 1, wherein a unipolar or bipolar substrate bias voltage is applied to the substrate, which is pulsed in a medium frequency range of from 1 to 10,000 kHz.

59. (Original) Process according to claim 58, wherein the substrate bias voltage is sinusoidal or is pulsed such that long negative and short positive pulse periods or large negative and low positive amplitudes are applied.

60. (Original) Process according to claim 43, wherein, during at least one of the cleaning of the surface and the application of the adhesive layer and the application of transition layer and the application of cover layer made of an adamantine carbon, a longitudinal magnetic field with a uniform line of flux

course is superimposed on the substrate, the magnetic field being variable continuously or in steps with respect to at least one of time and space.

61. (Original) Process according to claim 43, wherein said at least one of the application of the adhesive layer and the transition layer and the cover layer of adamantine carbon takes place at a pressure of from 10^{-4} mbar to 10^{-2} mbar.

62. (Currently Amended) Arrangement for coating one or several substrates, particularly for the implementation of the coating process for the protection against wear, for the protection against corrosion and for improving the sliding properties and the like, having an adhesive layer for the arrangement on a substrate, a transition layer for the arrangement on the adhesive layer and a cover layer of an adamantine carbon, said arrangement including ~~wherein the adhesive layer comprises at least one element from the Group which contains the elements of the 4th, 5th and 6th Subgroup and silicon, the transition layer comprises carbon and at least one element from the Group which contains the elements of the 4th, 5th and 6th Subgroup as well as silicon, and the cover layer comprises essentially adamantine carbon, the layer system having a hardness of at last 15 GPa, and an adhesion of at least 3 HF, having a vacuum chamber with a pumping system for generating a vacuum in the vacuum chamber,~~ substrate holding devices for receiving the substrates to be coated, at least one gas supply

unit for the metered addition of process gas, at least one vaporizer device for providing coating material for the vapor depositing, an arc generating device for igniting a direct-voltage low-voltage arc, a device for generating a substrate bias voltage, and having at least one or several magnetic field generating devices for forming a magnetic far field.

63. (Original) Arrangement according to claim 62, wherein the magnetic field generating device is formed by at least one Helmholtz coil.

64. (Original) Arrangement according to claim 63, wherein the Helmholtz coil can be controlled with respect to the producible magnetic flux density.

65. (Original) Arrangement according to claim 62, wherein the arrangement for generating a substrate bias voltage is designed such that the substrate bias voltage can be varied continuously or in steps with respect to at least one of a preceding sign and an amount of the applied substrate bias voltage and can be operated in a bipolar or unipolar manner with a frequency in a medium frequency range.

66. (Original) Arrangement according to claim 62, wherein the vaporizer device comprises at least one sputter targets, arc sources, thermal

vaporizers, crucibles heated by low-voltage arcs and other thermal evaporation apparatus.

67. (Original) Arrangement according to claim 62, wherein the vaporizer device is able to separated from the remaining process chamber.

68. (Original) Arrangement according to claim 62, wherein the arrangement comprises a substrate heating system in the form of one of an inductive heater and a radiant heater.

69. (Original) Arrangement according to claim 62, wherein the arc generating device comprises an ion source and an anode as well as a direct voltage supply, the ion source being connected with the negative pole of the direct voltage supply.

70. (Original) Arrangement according to claim 69, wherein the positive pole of the direct voltage supply is able to be connected with the anode or the substrate holding devices.

71. (Original) Arrangement according to claim 69, wherein the ion source comprises a filament made of one of tungsten and tantalum, which is

arranged in an ionization chamber which can be separated from the process chamber by a screen, made of one of tungsten and tantalum.

72. (Original) Arrangement according to claim 62, wherein, the substrate holding devices are movable, about at least one or several axes.

73. (Original) Arrangement according to claim 62, wherein, in addition, permanent magnets are provided for generating a magnetic near field.

74. (Original) Arrangement according to claim 73, wherein the additional permanent magnets are constructed in a ring shape around the vacuum chamber with an alternating pole alignment, and are constructed as an magnetron electron trap.

75. (New) The process according to claim 43, wherein the adhesive layer comprises at least one element from the Group which contains the elements of the 4th, 5th and 6th Subgroup and silicon, the transition layer comprises carbon and at least one element from the Group which contains the elements of the 4th, 5th and 6th Subgroup as well as silicon, and the cover layer comprises essentially adamantine carbon, the layer system having a hardness of at last 15 GPa, and an adhesion of at least 3 HF, on a substrate.

76. (New) The arrangement according to claim 62, wherein the adhesive layer comprises at least one element from the Group which contains the elements of the 4th, 5th and 6th Subgroup and silicon, the transition layer comprises carbon and at least one element from the Group which contains the elements of the 4th, 5th and 6th Subgroup as well as silicon, and the cover layer comprises essentially adamantine carbon, the layer system having a hardness of at last 15 GPa, and an adhesion of at least 3 HF, having a vacuum chamber with a pumping system for generating a vacuum in the vacuum chamber,